same family. The elements of the protective covering in the latter are modified marginal spines; in the former they are special processes given off from the walls of the cell. These are not morphological equivalents, whilst the general character of the two structures is dissimilar. *Hiantopora* must therefore be the type of a distinct family group.

[To be continued.]

MISCELLANEOUS.

On the Nervous System of Monocotylidæ.
By M. G. Saint-Remy.

Among the *Tristomeæ*, the nervous system of the *Tristomidæ* is well-known, thanks to recent researches, in particular the labours of Lang and Monticelli. No precise observations have hitherto been made on the *Monocotylidæ*, of which we have examined two types—*Pseudocotyle squatinæ* and *Microbothrium apiculatum* *.

We know that, among the *Tristomidæ*, the brain, situated above and in front of the pharynx, sends out six pairs of nerves, three in front and three behind (lateral nerves), of which the two outermost, ventral in position, extend as far as the posterior sucker, where they anastomose. The nervous system of *Pseudocotyle squatinæ* most nearly resembles this type. The brain is a thick band, incurved during growth, and situated in front of the pharynx, above the vestibule; it gives rise to five pairs of anterior nerves, and behind to two or perhaps three pairs of lateral nerves. The first pair of anterior nerves is large, arises directly against the median line in the upper region of the brain, and loses itself in the parenchyma, above the mouth: it is the homologue of the nerves of the Tristomian frontal lobe, the internal nerves of Monticelli. The second pair is very slender and of little importance; the third is constituted by two branches which start one from each exterior angle of the brain, and lose themselves outside: they represent the nerves of the suckers (median nerves) of the *Tristomidæ*. The fourth corresponds to the third pair of the latter: it is formed of two strong branches, which pass forwards and inwards to unite in the median line, as in *Tristomum*, but remain here without contact with the other anterior nerves. Lastly, the fifth pair is represented by two little accessory threads of no importance.

As regards lateral nerves, we have found two pairs of strongly

* These investigations were made upon animals collected at the Roscoff laboratory, where Prof. Lacaze-Duthiers was good enough to accord to us the most liberal hospitality.

developed ventral branches, corresponding to those of the *Tristomidæ*, and it appeared to us that there was a descending branch running along the pharynx, and appearing to unite with its homologue on the opposite side: this nerve would perhaps represent the latero-dorsal nerve of the *Tristomidæ*.

The two internal and external ventral nerves of each side (the internal one being stronger and following the contour of the reproductive organs, the external more slender and more incurved) start from the infero-posterior extremity of the brain and unite in the posterior region of the body, a little in advance of the sucker, forming a little ganglion on each side, which gives off a nervous branch. We did not determine the presence of commissures between the right and left nerves, but those of the same side are united by three transverse branches, and the internal nerve sends off a few rami which pass to the neighbouring organs.

The nervous system of *Microbothrium apiculatum* is the most complicated yet observed in the group. Besides the brain, there exist two post-pharyngeal centres united by a transverse commissure, and a large ganglion in the posterior region of the body. The brain, which is much reduced in size, gives off anteriorly only two branches, which correspond to the first pair of nerves in the *Tristomidæ*. Posteriorly, it is prolonged on each side of the pharynx into a branch passing to the pharyngeal ganglion, and giving off two little threads, which are perhaps homologous to the second and third pairs of *Pseudocotyle*. The pharyngeal ganglia are two large nervous masses united by a transverse branch; from the latter there arises a pair of very short nerves, corresponding to the latero-dorsal nerves of the *Tristomidæ*; from each ganglion there are given off two longitudinal nerves (internal and external ventral nerves) and two accessory ones which lose themselves in the parenchyma; lastly, from the extremity of the ganglion there arises an anterior nerve, which seems to prolong the external ventral nerve, and extends as far as the mouth, uniting in its course with the branch passing from the brain to the pharyngeal ganglion: this nerve appears to represent the third anterior pair of the *Tristomidæ*. The two ventral nerves are united to one another by three commissures as in *Pseudocotyle*. Posteriorly they enter a ganglion whence four pairs of nerves are given off, of which three are posterior and one tolerably long anterior; this important nervous apparatus corresponds to the power of the muscular system in this region.

These researches show, on the whole, that the nervous system of the *Monocotylidæ* is constructed on the same plan as that of the *Tristomidæ*, but exhibits a somewhat greater degree of complication, which we should not have expected.—*Comptes Rendus*, tome cxiii. no. 4 (July 27, 1891), pp. 225–227.